

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-31. (Previously Canceled)

32. (Currently Amended) An intervertebral disc prosthesis for replacing the natural disc of a human spine, comprising:

a first bone engagement surface securable to a first vertebral body, the first bone engagement surface comprising at least one bone engagement feature;

a second bone engagement surface securable to a second vertebral body, the second bone engagement surface comprising at least one bone engagement feature; and

~~an articulating structure comprising~~ first and second ~~articulating bearing~~ surfaces positioned between the first and second bone engagement surfaces, at least one of the first and second ~~articulating bearing~~ surfaces comprising ~~an eonstantly sloped angled section, the angled section having a constant slope from anterior to posterior~~ to provide a correction angle when the prosthesis is in a neutral position, the ~~eonstantly sloped angled~~ section crossing the coronal plane of the first and second vertebral bodies[[,]];:

the ~~articulating structure~~ prosthesis further comprising third and fourth ~~articulating bearing~~ surfaces positioned between the first and second bone engagement surfaces, each of the third and fourth ~~articulating bearing~~ surfaces comprising a planar portion, the planar portions positioned to be in surface contact with one another when the prosthesis is in the neutral position, wherein the ~~articulating structure first, second, third and fourth bearing surfaces cooperate to urge[[s]]~~ the first and second bone engagement surfaces toward a relative anterior/posterior orientation that provides a preferred lordotic angle between the first and second vertebral bodies.

33. (Currently Amended) The intervertebral disc prosthesis of claim 32, wherein an anterior portion of the ~~constantly sloped angled~~ section is higher than a posterior portion of the ~~constantly sloped angled~~ section to correct lordosis, wherein the preferred lordotic angle is greater than zero.

34. (Previously Presented) The intervertebral disc prosthesis of claim 32, wherein the preferred lordotic angle is selected from the group consisting of 0, 3 and 6 degrees.

35. (Currently Amended) The intervertebral disc prosthesis of claim 32, further comprising a first end plate comprising the first bone engagement surface, the first end plate further comprising the ~~first second articular bearing~~ surface, wherein the ~~first second articular bearing~~ surface cooperates with the ~~second first articular bearing~~ surface to urge the first and second bone engagement surfaces toward the anterior/posterior orientation.

36. (Currently Amended) The intervertebral disc prosthesis of claim 35, further comprising a second end plate comprising the second bone engagement surface, the second end plate further comprising the ~~second fourth articular bearing~~ surface, wherein the ~~second fourth articular bearing~~ surface cooperates with the ~~first third articular bearing~~ surface to urge the first and second bone engagement surfaces toward the anterior/posterior orientation.

37. (Currently Amended) The intervertebral disc prosthesis of claim 33, ~~wherein the articular structure comprises a further comprising a~~ nucleus formed separately from the first and second bone engagement surfaces, the nucleus comprising the first and third ~~articular bearing~~ surfaces.

38. (Currently Amended) The intervertebral disc prosthesis of claim 37, further comprising a first end plate comprising the first bone engagement surface and a second end plate comprising the second bone engagement surface, wherein the first end plate comprises the second articulating bearing surface positioned to articulate with the first articular bearing surface of the nucleus, and the second end plate comprises the fourth articulating bearing surface positioned to articulate with the third articular bearing surface of the nucleus.

39-40. (Canceled)

41. (Currently Amended) An intervertebral disc prosthesis for replacing the natural disc of a human spine, comprising:

a first essentially flat bone engagement surface securable to a first vertebral body;
a second essentially flat bone engagement surface securable to a second vertebral body;
a nucleus positioned between the first and second bone engagement surfaces, a first articular bearing surface formed on the nucleus, a planar third bearing surface formed on the nucleus opposite the first articulating bearing surface; a first straight section formed on the first articulating bearing surface, the first straight section having a constant non-zero slope oriented with respect to the planar third bearing surface to provide a corrective angle; and

a second articulating bearing surface that articulates with the first articulating bearing surface, the second articulating bearing surface shaped to mate with the ~~constantly sloped~~ first straight section in the neutral position to urge the first and second bone engaging engagement surfaces toward an orientation of the first bone engagement surface relative to the second bone engagement surface that provides a deformity correction across at least one axis.

42. (Canceled)

43. (Currently Amended) The intervertebral disc prosthesis of claim 41, wherein the first straight section is positioned adjacent to and contiguous with a first curved section of the first articular bearing surface, wherein the first straight section has a radius of curvature different from a radius of curvature of the first curved section.

44. (Currently Amended) The intervertebral disc prosthesis of claim 41, wherein the second articular bearing surface comprises a second straight section formed on the second articular bearing surface.

45. (Currently Amended) The intervertebral disc prosthesis of claim 44, wherein the first straight section is positioned longitudinally between and contiguous with first and second convexly curved sections of the first articular bearing surface, wherein the second straight section is shaped to mate with the first straight section.

46-47. (Canceled)

48. (Previously Presented) The intervertebral disc prosthesis of claim 41, further comprising a first end plate securable to the first vertebral body, wherein the first end plate comprises the first bone engagement surface, wherein the first end plate further comprises the second bearing surface.

49. (Canceled)

50. (Previously Presented) The intervertebral disc prosthesis of claim 48, further comprising a second end plate securable to the second vertebral body, wherein the second end plate comprises the second bone engagement surface.

51. (Currently Amended) An intervertebral disc prosthesis for replacing the natural disc of a human spine, comprising:

a first end plate securable to a first vertebral body, the first end plate comprising a ~~first articulating second bearing~~ surface comprising a ~~first second~~ straight portion section in at least one cross section;

a second end plate securable to a second vertebral body; and

a nucleus positionable between the first and second end plates, the nucleus comprising a ~~second articulating first bearing~~ surface that articulates with the ~~first articulating second bearing~~ surface, the ~~second articulating first bearing~~ surface comprising a first straight section sloping between and contiguous with first and second convexly curved sections of the ~~second articulating first bearing~~ surface, the nucleus further comprising a planar ~~fourth articulating third bearing~~ surface opposite the ~~second articular first bearing~~ surface;

wherein the height of the nucleus between the ~~second articulating first bearing~~ surface and the ~~fourth articulating third bearing~~ surface at the junction of the first convexly curved section and the first straight section is greater than the height of the nucleus between the ~~second articulating first bearing~~ surface and the ~~fourth articulating third bearing~~ surface at the junction of the second convexly curved section and the first straight section;

wherein the first straight section rests against the ~~first second~~ straight portion section in a relative orientation between the first and second end plates that provides a preferred lordotic angle between the first and second vertebral bodies.

52. (Currently Amended) The intervertebral disc prosthesis of claim 51, wherein the second end plate comprises a ~~third articular fourth bearing~~ surface, the ~~third articular surface comprising a second straight portion in at least one cross section~~, wherein the fourth ~~articular bearing~~ surface that articulates with the third ~~articular bearing~~ surface.

53. (Canceled herein)

54. (Previously Presented) The intervertebral disc prosthesis of claim 51, wherein an anterior

portion of the nucleus has greater thickness than a posterior portion of the nucleus to correct lordosis, wherein the preferred lordotic angle is greater than zero.

55. (Previously Presented) The intervertebral disc prosthesis of claim 51, wherein the preferred lordotic angle is selected from the group consisting of 0, 3 and 6 degrees.

56. (Previously Presented) The intervertebral disc prosthesis of claim 51, wherein at least one of the first and second end plates further comprises a stop member positioned to abut the vertebral body to prevent the prosthesis from migrating from its intended position between the first and second vertebral bodies.

57. (Canceled)

58. (Currently Amended) An intervertebral disc prosthesis for replacing the natural disc of a human spine, comprising:

a first end plate securable to a first vertebral body, comprising:

a plurality of bone engagement features shaped to penetrate bone;

a perimeter wall;

a ~~first articular~~ second bearing surface comprising: a planar portion intersecting the perimeter wall; a second straight section portion in at least one cross section extending along the sagittal midline of the bearing surface; and a pair of individual projections arms which protrude from the planar portion on opposing lateral sides of the second straight section portion;

a second end plate securable to a second vertebral body, comprising:

a plurality of bone engagement features shaped to penetrate bone; and

a ~~second articular~~ fourth bearing surface that is substantially entirely flat; and

a nucleus positionable between the first and second end plates, the nucleus comprising:

a ~~third articular~~ first bearing surface that articulates with the ~~first articular-second bearing~~ surface, the ~~third articular~~ first bearing surface comprising a first straight section

sloping between and contiguous with first and second curved sections of the ~~third articular~~ ~~first bearing~~ surface, wherein the first straight section rests against the ~~second straight section~~ portion in a relative orientation between the first and second end plates that provides a preferred lordotic angle between the first and second vertebral bodies, the nucleus further comprising a ~~fourth articular~~ ~~third bearing~~ surface that articulates with the ~~second articular~~ ~~fourth bearing~~ surface to permit at least one of medial-lateral and anterior-posterior articulation between the nucleus and the second end plate.

59. (Canceled herein)

60. (Previously Presented) The intervertebral disc prosthesis of claim 58, wherein an anterior portion of the nucleus has a greater thickness than a posterior portion of the nucleus to provide the preferred lordotic angle.

61. (Previously Presented) The intervertebral disc prosthesis of claim 58, wherein at least one of the first and second end plates further comprises a stop member positioned to abut the vertebral body to prevent the prosthesis from migrating from its intended position between the first and second vertebral bodies.

62. (Canceled)

63. (Currently Amended) The intervertebral disc prosthesis of claim 58, wherein the second ~~endplate articular surface~~ comprises a trough, wherein the trough is larger than the ~~fourth articular~~ ~~third bearing~~ surface in at least one of the anterior-posterior and medial-lateral dimensions to permit translation between the nucleus and the second end plate.

64. (Previously Presented) The intervertebral disc prosthesis of claim 32, further comprising:
an endplate, wherein the endplate comprises at least one of the first and second bone engagement surfaces; and

wherein the ~~constantly sloped angled~~ section is translatable with respect to the endplate in at least one of the anterior-posterior and medial-lateral directions.

65. (Previously Presented) The intervertebral disc prosthesis of claim 32, further comprising:
an endplate, wherein the endplate comprises at least one of the first and second bone engagement surfaces; and
wherein the endplate comprises the ~~constantly sloped angled~~ section.

66. (Currently Amended) The intervertebral disc prosthesis of claim 41, wherein the first straight section is positioned at an angle relative to the second bone ~~engaging engagement~~ surface when the first and second bone ~~engaging engagement~~ surfaces are in the orientation that provides the deformity correction, wherein the angle is greater than zero.

67. (Canceled)

68. (Previously Presented) The intervertebral disc prosthesis of claim 41, wherein the nucleus is formed of an elastomer.

69. (Previously Presented) The intervertebral disc prosthesis of claim 68, wherein the elastomer is a low friction elastomer.

70. (Previously Presented) The intervertebral disc prosthesis of claim 58, wherein the nucleus is formed of an elastomer.

71. (Previously Presented) The intervertebral disc prosthesis of claim 70, wherein the elastomer is a low friction elastomer.

72. (New) The intervertebral disc prosthesis of claim 52, wherein the third bearing surface on the nucleus articulates with the fourth bearing surface on the second end plate to permit axial rotation between the nucleus and the second end plate, the fourth bearing surface shaped to allow for axial rotation with stops beyond the limits of normal motion.

73. (New) The intervertebral disc prosthesis of claim 60, wherein the preferred lordotic angle is selected from the group consisting of 0, 3 and 6 degrees.